



U.S. Department of Energy
and the
National Science Foundation



April 23-24, 2013

To: Vernon Pankonin, NSF Division of Astronomical Sciences
Nigel Sharp, NSF Division of Astronomical Sciences
Kathleen Turner, DOE Office of High Energy Physics

Subject: Dark Energy Survey (DES) Experiment Pre-operations Review

The Department of Energy (DOE) Office of High Energy Physics (HEP) and the National Science Foundation (NSF) Division of Astronomical Sciences (AST) request that you hold a pre-operations review of the Dark Energy Survey (DES) experiment on April 23-24, 2013, at Fermi National Accelerator Laboratory (FNAL). The last review of DES was in May 2012 and concentrated on the installation phase and the plans and preparations for the commissioning and then experimental operations phase.

Kathleen Turner is the DOE program manager for DES and will serve as the contact for the DOE efforts, as well as organize and chair the review. Vernon Pankonin and Nigel Sharp are the NSF program managers for the National Optical Astronomy Observatory (NOAO) and DES, respectively, and will serve as the contacts for the NSF efforts on the review.

The DES experiment is a joint DOE and National Science Foundation (NSF) partnership to study the nature of dark energy. It uses a new Dark Energy Camera (DECam) and data management system (DESDM) on the Blanco Telescope at the NOAO's Cerro Tololo Inter-American Observatory (CTIO) in Chile. NSF is responsible for the DESDM and CTIO facilities improvement project (CFIP). The DECam fabrication was the responsibility of the DOE. After the delivery of the DECam to CTIO, NOAO took over responsibility for the installation, commissioning and operations of the DECam on the telescope, with DOE contributing to DECam support during these phases. The DECam saw first light in September 2012. Commissioning of the DECam and upgraded telescope was carried out in early fall 2012, followed by science verification studies through February 2013.

The purpose of this review is to assess the experiment's progress since the last review, its current status, and plans and preparations for readiness for the start of science survey operations in September 2013. To achieve the science goals, the DES collaboration is expected to use 525 nights of observing on the telescope, which they expect to use during a season from September to February each year over a total period of five years. The review panel should address the following specific items:

Technical

- Are there well-defined, mature and achievable plans in place to ensure that critical systems will be able by the time the survey starts to acquire survey-quality data efficiently enough to meet the science goals?
- Have the remaining risks been identified and mitigation strategies sufficiently developed?



Survey and Data

- Are the survey strategy and observing plans in place and consistent with successful delivery of the required data?
- Are there well-defined, mature and achievable plans in place to ensure that the data management system will be able by the time the survey starts to carry out the survey and perform the time-critical data processing and analysis tasks?
- Are plans in place, appropriate to this stage of the experiment, to ensure that the data management system will be able to perform necessary offline data processing, and to archive and serve science-quality data products to support science analyses by the collaboration?
- Are the tools, tasks and computing systems needed for the data analyses developed to the appropriate level for this stage of the experiment?

Cost and Schedule

- Are the estimated costs to carry out the pre-operations tasks as well as to support science survey operations understood, justified, and balanced with projected funding?
- In the event that realized costs exceed projected funding, are there adequate plans for adjusting project scope to minimize the impact on project outcomes?
- Have schedules with milestones been developed to ensure successful completion of pre-operations tasks, leading to the start of science data-taking in September 2013?


Management


- Is the management structure in place and appropriate to ensure success at completing the pre-operations tasks and carrying out science data-taking? Are appropriate acceptance tests in place?
- Are the roles and responsibilities of the three hosts and the collaborating institutions well defined and adequate for achieving the goals?

ES&H

- Are ES&H aspects properly identified and addressed and are Integrated Safety Management Principles being followed?

We appreciate your assistance in this matter. As you know, these reviews play an important role in both DOE and NSF programs and will be critical input to decisions about support of the DES experiment. We look forward to receiving the committee's report within 60 days of the review.


Jim Ulvestad
Division Director
Division of Astronomical Sciences
National Science Foundation
Arlington, VA


Glen Crawford
Director, Research and Technology Division
for High Energy Physics
Office of Science, Department of Energy
Germantown, MD